

MOBOTIX

CASE STUDY



Kardex Mlog Provides Optimized Warehouse Logistics With MOBOTIX Cameras

Downtimes In The High-Bay Warehouse Reduced By Up To 30 Percent Thanks To Video System

Fast, punctual deliveries are the key to success in logistics, and successful deliveries require an efficient storage system. For example, storage and retrieval systems arrange Euro-pallets in fully automatic high-bay warehouses. If these systems stop running, this results in major economic losses for the company. That's why Kardex Mlog, one of the leading suppliers of integrated material flow systems and high-bay warehouses, equips its storage and retrieval systems with MOBOTIX S15D cameras as standard in order to keep downtimes to a minimum. As a result, customers are able to reduce downtimes by up to 30 percent and benefit from the economic advantage as well as an increased level of safety for their employees.

Kardex Mlog has over 40 years of experience in planning, development and maintenance of fully automated logistics solutions for storing pallets, small parts, long goods and stage constructions. The general company offers comprehensive service, including full technical support. Failure-free operation of the system is always a priority. At the heart of these systems are the storage and retrieval systems. Successful overall performance demands that this equipment be both reliable and dynamic. The company has relied on MOBOTIX video systems for several years now. These systems help to resolve disruptions quickly and keep device downtimes as short as possible.

Cost Savings Thanks To Full View

Kardex Mlog works closely with IBC Raif GmbH to install the cameras on the devices. The IT and automation service provider is a specialist in consultation, planning, installation, operation, training and services for security systems. "We have been distributing MOBOTIX video systems for several years and are thoroughly impressed with the solutions," explains Norbert E. Raif, Managing Director at IBC Raif GmbH.

Kardex Mlog especially appreciates that the video systems can be ideally adapted to preexisting IT infrastructures and that the systems do not require any additional cables or programs. The storage and retrieval systems are like unmanned forklifts that run on tracks through rack aisles up to 100 meters in length and 40 meters in height. They use telescopic arms to transport Euro-pallets and place them at the designated place on the shelf. To do so, they extend the telescopic rod of the telescopic fork fully automatically. Once the pallet is correctly positioned, the storage and retrieval system heads for the target shelf and unloads the pallet. "An S15D with a lens on the left and the right is mounted on every storage and retrieval system," explains Raif.

Security-Vision-Systems





S15D

An S15D Is Installed On Every Operating Device

"The S15D cameras allow the operators in the high-bay warehouses to clearly see whether anything is hanging over the side of the pallets that could potentially lead to machine downtime," explains the technical director of Kardex Mlog. "That is also the main reason why we implement cameras on the storage and retrieval systems in the first place. Time is money with logistics and if the warehouse comes to a standstill this results in high costs for the company. The downtimes for the storage and retrieval systems therefore need to be as short as possible."

Furthermore, it is not necessary to perform complex and dangerous on-site analyses in high-bay warehouses thanks to real-time monitoring. Employees no longer have to climb to heights of up to 40 meters in order to see what stopped the system.

Troubleshooting For Greater Efficiency

The MOBOTIX video systems also record events before a disruption, allowing an extensive error analysis to take place. "The last four minutes are always permanently saved before a disruptive event," explains the technical director of Kardex Mlog. "The camera automatically overwrites the previously stored image sequences during uninterrupted operation." The video images make it possible to process faults quickly and accurately, often without a service technician having to inspect the affected rack aisle with the systems switched off. If it is necessary to correct the fault on-site, the video images can be used to determine how many employees are needed and what protective and auxiliary equipment or tools and replacement parts are required.

In the decentralized MOBOTIX concept, every camera serves as a high-performance computer. Data and image processing as well as coding is carried out in the camera itself. The PC or video control center now serves purely for viewing and controlling the cameras, but not for analysis and recording. The user therefore does not require expensive, overloaded video management software.

Two Become One: Hemispheric Technology Saves Costs

Kardex Mlog previously used M1, M10 and later the M22 and M24 cameras from MOBOTIX to ensure a clear view of the pallets. These only had one lens each, meaning that two cameras were installed on each storage and retrieval system. The double hemispheric S15D cameras have been in use since autumn 2013. This model features two miniature lens units and allows for a huge range of even more flexible application scenarios.

The hemispheric lenses are linked to the main housing via a connection cable and are attached onto the storage and retrieval system in a way that makes it possible to see what is happening around the palette from a bird's-eye view. They also offer two distortion-corrected, high-resolution 180° panoramic images, each with 3.1 megapixels. "The hemispheric technology gives us a 360° all-round view without any blind spots and now all we have left to do is install one more camera," explains the technical director of Kardex Mlog.

The dual camera also offers another important advantage: With a multi-camera system, objects constantly move from



S15D

one viewing area to the next, but with a hemispheric panoramic camera, they never disappear from the video feed, nor do they double up in overlapping viewing areas.

Good Visibility Even In The Dark

If a disruptive event occurs, the storage and retrieval systems will automatically come to a standstill. The installed video systems now also give the warehouse operators the option to analyze the cause of the disruption using the recording and quickly implement specific troubleshooting measures. In order for the warehouse workers to obtain a clear video image, even in the dark high-bay warehouse, Kardex Mlog developed a solution concept together with IBC Raif GmbH. Small halogen spots have been installed on the left and right of the storage and retrieval systems. These LEDs switch on automatically during loading and unloading.

"There is also the option of installing black and white lenses, which deliver a significantly better image in the dark. However, these are not used in many warehouses because it needs to be possible to precisely identify the color of the product stored there. Therefore color lenses are generally used together with halogen spots," explains Raif.

One Size Fits All – Video System For Standard Applications And Special Applications

"In my opinion, the system is unrivaled on the market. The robust, fiber-reinforced housing, the broad range of operating temperatures, from -30 to 60° Celsius (-22°F to +140°F) without ventilation and heating and the fact that there are no mechanical moving parts ensure the high reliability

of MOBOTIX cameras in all environmental conditions." This also plays an important role in fully-automated high-bay warehouses. The containers may need to be stored at a cool temperature depending on the industry in question, for example, in a pharmaceutical company or a food company. The installed systems and devices also need to be temperature-resistant.

Downtimes Reduced By Up to 30 Percent

"We identified how long the downtimes were before using the current Kardex Mlog with the camera and compared them with the current state. The figures are impressive: The downtimes have reduced on average by 25 to 30 percent since the camera system has been installed," summarizes Norbert E. Raif. "The warehouse operators save several thousand euros by using MOBOTIX video systems for the storage and retrieval systems."

Interested parties can view what this kind of system looks like at a demonstration stand at the Kardex Mlog headquarters in Neuenstadt, Germany. S15D cameras from MOBOTIX are also in use here. This way, customers can experience first-hand how they are installed and view the kinds of images they deliver.



MOBOTIX – Made in Germany: Innovative Technology, Reduced Total Costs

The German company MOBOTIX AG is known as the leading pioneer in network camera technology since its founding in 1999, and its decentralized concept has made high-resolution video systems cost-efficient.

Increased Resolution Reduces Amount Of Cameras Needed

High-resolution sensors of up to 6 megapixels provide a better overview and allow an entire room to be monitored with just one camera.

Reduced Installation Costs At Any Distance

A standard Ethernet connection enables the use of readily available IT network components, such as copper, optical fiber, and wireless.

Intelligent Cameras Reduce The Number Of Recording Devices

The decentralized MOBOTIX concept makes it possible to store data from approximately ten times more cameras to a single storage device than is normally possible.

Event-Controlled Image Format Minimizes Storage Costs

Automatic image adjustment (frame rate, size) based on movement, sound or signal input reduces the bandwidth and storage requirements.

Low Power Costs, No Extra Heating

Anti-fogging without heating allows usage of standard PoE technology to power the system via Ethernet or two-wire cable, saving power cabling costs.

Backup Power Supply Costs Reduced By Over 80 Percent

Low power consumption, approximately four watts, enables year-round PoE (no heating required) with one centralized UPS from installation room using the network cabling.

Robust And Practically Maintenance-Free

Fiberglass-reinforced composite housing with built-in cable protection and no mechanical moving parts (no auto iris) guarantees longevity.

Software For Thousands Of Cameras And Storage Devices Included

The right premium user interface software for every application: MxEasy for compact video solutions, MxManagementCenter for the professional control center and the MOBOTIX App for on the go.

Unlimited Scalability And High Return On Investment

While in use, more cameras and storage can be added at any time; image format, frame rate & recording parameters are camera specific.

Additional Functions And Other Extras Included

Audio support, lens, wall mount and weatherproof housing (-30 to +60 °C; -22 to +140 °F) are included; microphone & speaker available in almost all models.

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